

REMARKS / ARGUMENTS

Status of Claims

Claims 9-16 are pending in the application and stand rejected. Applicant has amended Claims 9 and 13-16, and has added new Claims 42-45, leaving Claims 9-16 and 42-45 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §103(a) have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

Rejections Under 35 U.S.C. §103(a)

Claims 9, 11 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Takeya et al. (JP Patent No. 56-67915, hereinafter Takeya) in view of Burns (U.S. Patent No. 3,621,334, hereinafter Burns).

Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Takeya, as modified and as applied to Claim 9, and further in view of Berkcan et al. (U.S. Patent No. 6,018,239, hereinafter Berkcan).

Claims 13-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Takeya, as modified and as applied to Claim 9, and further in view of Smith (U.S. Patent No. 5,495,169, hereinafter Smith).

Applicant traverses these rejections for the following reasons.

Takeya discloses a magnetic core having a first layer of material 5 absent an air gap and a second layer of material 6 present an air gap. (Figures 3 and 7).

Burns discloses a c-shaped and a figure-eight-shaped magnetic core used with a current sensor having a Hall effect device mounted in a gap. (Figures 1, 4 and 5, and col. 2, lines 17-18).

Berkcan discloses a core 70 for a current sensor 50 having windings 78 mounted on bobbins 72 mounted on the core legs. (Figures 1 and 2, and col. 4, lines 30-50).

Smith discloses a core (16, 31) for a current sensor being formed of NiFe with various nickel percentages. (Figure 2A, and col. 6, lines 17-38).

As referenced, Takeya, Burns, Berkcan and Smith (the References) are absent disclosure of a magnetic core having at least a first plurality of layers of material having a relatively high magnetic permeability and at least a second plurality of layers of material having a relatively low magnetic permeability arranged proximate the first plurality of layers of material, and are absent disclosure of a mixed material magnetic core that exhibits a dynamic range greater than a dynamic range of a similarly shaped magnetic core having only one of the first plurality of layers of material and the second plurality of layers of material.

Applicant respectfully submits that the obviousness rejection based on the References is improper as the References fail to teach or suggest each and every element of the instant invention. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

Applicant has amended independent Claim 9 to include a first plurality of layers of material having a relatively high magnetic permeability and a second plurality of layers of material having a relatively low magnetic permeability, to provide a mixed material magnetic core that exhibits a dynamic range greater than a dynamic range of a similarly shaped magnetic core having only one of the first plurality of layers of material and the second plurality of layers of material. Support for the claim amendment may be found at page 4, lines 25-28, page 13, line 5, through page 15, line 11, page 17, lines 1-4, Figures 7A-7F, and Figure 8. Dependent claims inherit all of the limitations of the parent claim.

In comparing the References to the instant invention, Applicant finds Takeya to disclose a core with and without an air gap, Burns to disclose a c-shaped core with a Hall effect device, Berkcan to disclose a core having a bobbin and a secondary winding, and Smith to disclose a core having NiFe, but does not find disclosure of a first plurality of

layers of material having a relatively high magnetic permeability and a second plurality of layers of material having a relatively low magnetic permeability, where the resulting mixed material magnetic core exhibits a dynamic range greater than a dynamic range of a similarly shaped magnetic core having only one of the first plurality of layers of material and the second plurality of layers of material, as claimed in the instant invention. The Examiner alleges that Takeya discloses “at least one first layer of material [5] *having a relatively high magnetic permeability*” and “at least one second layer of material [6] *having a relatively low magnetic permeability*” (Paper 6, page 2, emphasis added), but does not offer a reference to a particular element or description in support thereof, and Burns, Berkcan and Smith fail to cure this deficiency.

In view of the foregoing, Applicant submits that the References fail to teach or suggest each and every element of the claimed invention and disclose a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under §103(a).

Additionally, Applicant respectfully submits that an Examiner cannot establish obviousness by locating references which describe various aspects of a patent Applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent Applicant has done. *Ex parte Levengood*, 28, USPQ2d 1300, 1302 (Bd.Pat.App.Int., 1993). References may not be combined indiscriminately. It is not enough for a valid rejection to view the prior art in retrospect once an Applicant's disclosure is known. The art applied should be viewed by itself to see if it fairly disclosed doing what an Applicant has done. *In re Skoll*, 187 USPQ 481, 484 (CCPA, 1975) (citing *In re Schaffer*, 108 USPQ 326, 328-29 (CCPA, 1956)). “The test for an implicit showing [of obviousness] is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved *as a whole* would have suggested to those of ordinary skill in the art.” (Emphasis added). *In re Kotzab*, 217 F.3d 13645, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

Takeya discloses a core with and without an air gap (Figures 4 and 8), Burns is generally concerned with sensing a ground fault condition using a core with an air gap and a Hall effect device (col. 1, line 51, through col. 2, line 16), Berkcan is generally concerned with a self-powered axial current sensor where the sensing and self-powering functions are separate (col. 1, lines 61-65), and Smith is generally concerned with overcoming problems associated with conventional clamp-on sensors (col. 3, lines 6-8). As referenced, Takeya, Burns, Berkcan and Smith do not appear to be concerned with improving the dynamic range of a current sensor core, or recognize the advantages of employing a plurality of layers of core material having relatively high and low magnetic permeability's for the purpose of expanding the sensor dynamic range over a current X-rating from about 0.2X to about 1000X as disclosed and claimed.

At page 13, line 5, through page 15, line 11, and in Figure 8, Applicant describes and illustrates the advantages of a mixed material magnetic core over a non-mixed material magnetic core in a current sensor.

The Examiner alleges that it would have been obvious to a person having ordinary skill in the art to combine the References for the purpose of detecting current imbalance, canceling off stray magnetic fields and/or controlling sensitivity, providing support for the windings on the leg and providing current sensing, or providing good magnetic flux density. However, since none of the References teach or suggest the use of a plurality of layers of core material having relatively high and low magnetic permeability's for the purpose of improving the dynamic range of a current sensing core, there can be no motivation to combine the References for this purpose. In arriving at an absence of any teaching to combine the References, one skilled in the art does not arrive at the claimed invention.

In view of the foregoing, Applicant submits that no motivation can be found in any of the References to combine the technologies of the References to arrive at the claimed invention, and that the Examiner has improperly combined the References since there is no evidence of a motivating force that would impel one skilled in the art to do

what the patent Applicant has done. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a).

Newly Added Claims 42-45

Support for newly added Claims 42-45 may be found at page 14, line 32, through page 15, line 11, and in Figure 8, of the specification as originally filed. Dependent claims inherit all of the limitations of the parent claim.

In light of the forgoing, Applicant respectfully submits that the Examiner's rejections under 35 U.S.C. §103(a) have been traversed, and respectfully requests that the Examiner reconsider and withdraw these rejections.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 06-1130.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above identified Deposit Account.

Respectfully submitted,

CANTOR COLBURN LLP

Applicant's Attorneys

By: 

David Arnold
Registration No: 48,894
Customer No. 23413

Address: 55 Griffin Road South, Bloomfield, Connecticut 06002
Telephone: (860) 286-2929
Fax: (860) 286-0115